

Before the  
Federal Communications Commission  
Washington, D.C. 20554

In the Matter of	)	
	)	
Annual Assessment of the Status of	)	MB Docket No. 03-172
Competition in the Market for the	)	
Delivery of Video Programming	)	

To: The Commission

**REPLY COMMENTS OF THE  
NATIONAL ASSOCIATION OF BROADCASTERS**

Henry L. Baumann  
Benjamin F.P. Ivins  
National Association of Broadcasters  
1771 N Street, N.W.  
Washington, D.C. 20036  
(202) 429-5430

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## **EXECUTIVE SUMMARY**

The Comments of certain satellite carrier interests urge that spectrum capacity limits should preclude any requirements or regulations regarding local into local carriage of all television stations in all markets, carriage of HDTV broadcast signals, or the carriage of both analog and digital broadcast signals during the transition to digital. For a number of reasons the Commission must take these claims of limited capacity with several pounds of salt.

The satellite industry claims that: "The spectrum capacity requirements of forced carriage of HD signals likely would reverse the ability to DBS providers to offer local broadcast stations" and that if carry one carry all were extended to all HD signals "DBS providers may be limited to offering local-into-local service to just one market." That claim rings very hollow when viewed in the context of similar past and, ultimately totally inaccurate, predictions of capacity limitations as an excuse not to have unwanted carriage burdens imposed.

A careful parsing of the satellite industry's alleged capacity limits as an excuse to avoid the imposition of additional carriage requirements reveals critical qualifiers that render these claimed limitations meaningless.

The satellite industry concedes that the ability to provide local into local television service has provided it with tremendous benefits, both in absolute terms and in its ability to compete with cable. Having derived such benefits, it is unseemly now for the satellite industry to suggest that, at best, it can only provide selected carriage as stations transition to digital.

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**I. Summary**

The National Association of Broadcasters ("NAB")<sup>1</sup> hereby submits these Reply Comments in response to the Commission's Notice of Inquiry ("Notice") in this proceeding.<sup>2</sup>

The Comments of certain satellite carrier interests<sup>3</sup> urge that spectrum capacity limits should preclude any requirements or regulations regarding local into local carriage of all television stations in all markets; carriage of HDTV broadcast signals; or the carriage of both analog and digital broadcast signals during the transition to digital. For a

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<sup>1</sup> NAB is a nonprofit, incorporated association which serves and represents America's radio and television broadcast stations.

<sup>2</sup> Notice of Inquiry in MB Docket No. 03-172, rel. July 30, 2003.

<sup>3</sup> See e.g., Comments of the Satellite Broadcasting and Communications Association ("SCBA Comments") at 12-13; Comments of DirecTV, Inc. ("DirecTV Comments") at 8-9.

number of reasons the Commission must take these claims of limited capacity with several pounds of salt.

First, the Commission has heard the satellite industry's feigned lack of capacity as a justification to avoid regulation about as many times as Chicken Little proclaimed that the sky was falling. Like that children's tale, the reality of the problem has never seemed to materialize, and technology, competition, and other factors always seem to provide for expanded capacity when the need arises.

Second, the Commission should parse the satellite industry's comment language very closely in assessing its claimed lack of capacity. Phrases such as "capacity limits of deployed DBS systems"<sup>4</sup> (emphasis supplied), and "DBS providers may be limited"<sup>5</sup> (emphasis supplied) appear to fudge current and future capacity limitations.

Third, the satellite industry cannot seriously claim that it actually lacks the physical capacity to undertake such tasks as carrying HD signals. The issue really is how should the capacity satellite has be allocated. On that issue satellite carriers should be willing to accept some obligations in exchange for the considerable benefits that carriage of television stations has provided. For example, satellite carriers concede that local into local has been a tremendous boon to their business both in absolute terms and in the ability to successfully compete with cable. Yet the carriers' willingness to undertake some concomitant burdens to help preserve the system of free over the air broadcasting that has provided the satellite industry with such a boost appears to be strangely lacking.

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<sup>4</sup> DirecTV Comments at 9.

<sup>5</sup> SBCA Comments at 13.

## II. Satellite Claims of Limited Capacity Are Highly Suspect

The satellite industry claims that: "The spectrum capacity requirements of forced carriage of HD signals likely would reverse the ability to DBS providers to offer local broadcast stations"<sup>6</sup> and that if carry one carry all were extended to all HD signals "DBS providers may be limited to offering local-into-local service to just one market".<sup>7</sup> That claim rings very hollow when viewed in the context of similar past and, ultimately totally inaccurate, predictions of capacity limitations as an excuse not to have unwanted carriage burdens imposed. As an example, below are excerpts of DirecTV's repeated assertions in these very annual assessment proceedings of essentially having hit a brick wall with respect to any further progress that could be achieved in expanding capacity through signal compression:

- July 31, 1998: "DirecTV has substantially reached current limits on digital compression with respect to the capacity on its existing satellites. Therefore, the addition of more channels will necessitate expanding to additional satellites . . ."
- Aug. 6, 1999: "DirecTV has substantially reached current limits on digital compression with respect to the capacity on its existing satellites."
- Sept. 8, 2000: "DirecTV has substantially reached current technological limits on digital compression with respect to capacity on its existing satellites. Although there are potentially very small gains still possible through the use of advanced algorithms, such technological developments can neither be predicted nor relied upon as a means of increasing system channel capacity."
- Aug. 3, 2001: "DirecTV has offered digitally compressed signals from its inception, and has substantially reached current technological limits on digital compression with respect to capacity on its existing satellites. Although there are potentially very small gains still possible through the use of advanced

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<sup>6</sup> SCBA Comments at 13.

<sup>7</sup> **Id.**

algorithms, such technological developments can neither be predicted nor relied upon as a means of increasing system channel capacity."<sup>8</sup>

Yet, during this period compression ratios have doubled from around 6:1 to somewhere between 12:1 and 14:1 which, together with other technological innovations such as frequency reuse, have resulted in increasing DirecTV's channel capacity from 216 in 1998 to its current capacity of approximately 1312 channels.<sup>9</sup>

On September 11, 2003, DirecTV, in this very proceeding, again pessimistically predicted that it had "substantially reached current technological limits on digital compression with respect to capacity on its existing systems," adding that while "there are potentially very small gains still possible through advanced algorithms" such developments "can neither be predicted not relied upon as a means of increasing system channel capacity."<sup>10</sup> Yet a mere 11 days later, on September 22, 2003, DirecTV announced that sometime between 2006 and 2008, if the merger with News Corp. was completed, it would carry all television stations in all markets plus at least 200 to 300

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<sup>8</sup> See, e.g., Comments of DIRECTV, Inc. ([1998] Annual Assessment of the Status of Competition in the Markets for the Delivery of Video Programming, CS Docket No. 98-102, at 5 (filed July 31, 1998); Comments of DIRECTV, Inc. [1999] Annual Assessment of the Status of Competition in the Markets for the delivery of Video Programming, CS Docket No. 99-230, at 9 (filed Aug. 6, 1000); Comments of DIRECTV, Inc. [2000] Annual Assessment of the Status of Competition in the Markets for the Delivery of Video Programming, CS Docket No. 11-132 at 16 (filed Sept. 8, 2000); Comments of DIRECTV, Inc. [2001] Annual Assessment of the Status of Competition in the Markets for the Delivery of Video Programming, CS Docket No. 01-129, at 16 (filed Aug 3, 2001).

<sup>9</sup> During this same period, EchoStar's capacity has increased from approximately 176 channels to 900-1080 channels. Petition to Deny of National Association of Broadcasters, Exhibit C, Declaration of Rich Gould 5-11, filed February 4, 2002, in CS Docket No. 01-348.

<sup>10</sup> DirecTV Comments at 18.

channels of local and national HDTV programming.<sup>11</sup> The added capacity for this stunning and commendable commitment resulted from a number of factors including "improved compression algorithms"<sup>12</sup>, that apparently did not exist eleven days earlier.

DirecTV is certainly not alone in the DBS industry with respect to the shifting sands upon which its capacity predictions and ability to provide local into local service appear to rest. In December 2001 EchoStar stated it could serve 36 markets by itself.<sup>13</sup> By February 2002, EchoStar revised that figure to 50 markets by itself.<sup>14</sup> May 2003 saw yet another revision as EchoStar says it could serve 106 markets by itself during 2003, with more to come in 2004.<sup>15</sup>

The Commission should seriously question the nabobs of negativism who provide the DBS capacity assessments for these proceedings. Rather, it should base its policies

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<sup>11</sup> Letter to the Commission of September 22, 2003, amending Application for Transfer of Control in MB Docket No. 03-124 at 4 (9/22/03 DirecTV letter).

<sup>12</sup> *Id.*, at 10.

<sup>13</sup> Joint Engineering Statement in Support of Transfer of Control Application, *In Re Application of EchoStar Communications Corp.*, CS Docket No. 01-348 (filed December 3, 2001): EchoStar and DirecTV say that each "typically offers only a few local broadcast stations to a small number of metropolitan areas [36 for EchoStar and 41 for DirecTV]."

<sup>14</sup> Opposition to Petitions to Deny and Reply Comments, *In Re Application of EchoStar Communications Corp.*, CS Docket No. 01-348 (filed Feb. 25, 2002): "EchoStar will have the capability of offering local channel service in [only] approximately 50 DMAs from its spot beam satellite[s] . . . "

<sup>15</sup> EchoStar Press Release, *EchoStar Dish Network Satellite TV Names 42 New Local Channel Markets for 2003* (released May 1, 2003): "[EchoStar] announced today 42 new designated market areas where it plans to launch local TV channels . . . This will bring the total number of markets DISH Network serves with local channels to 106 by year end. DISH Network is also announcing that it plans to offer local channels via satellite in more cities across the nation by end of 2004."



on the impressive results of capacity growth and expansion produced by those who actually design, build and deploy DBS satellites.

### **III. Claimed Current Capacity Limitations Based Upon Current Technological Limits of Currently Deployed Satellites Are Misleading**

A careful parsing of the satellite industry's alleged capacity limits as an excuse to avoid the imposition of additional carriage requirements reveals critical qualifiers that render these claimed limitations meaningless.

For example, SBCA says only that forced carriage of HD signals "likely would reverse the ability of DBS providers to offer local broadcast stations", <sup>16</sup> not that such a reversal would occur. And, of course, no hard data is presented to support this claim.<sup>17</sup>

Similarly, DirecTV's Comments regarding its capacity limits are qualified to those of "deployed DBS systems" on "existing satellites" based upon "current technological limits".<sup>18</sup> Conspicuously absent from this limited capacity assessment are 1) the capacity to be added by DirecTV's imminent launch of its DirecTV 7S spot beam satellite<sup>19</sup>; 2) potential added capacity from improvements in frequency reuse; 3) development of dishes capable of receiving signals from two or three orbital locations; 4) use of advanced compression techniques with existing equipment; 5) expanded channel capacity possible

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<sup>16</sup> SBCA Comments at 13.

<sup>17</sup> SBCA's extraordinary claim that requiring HD carriage of all signals in all markets "may" limit local to local offerings to one market is also absolutely unsupported and undocumented, **Id.**

<sup>18</sup> DirecTV Comments at 9, 18.

<sup>19</sup> DirecTV Comments at 2.

through 8PSK with new set-top boxes; 6) future improvements in signal compression technology such as the replacement of MPEG-2 with MPEG-4; and 7) the use of Ka-band. The potential for added capacity by both EchoStar and DirecTV through the use of these mechanisms was discussed at length in NAB's Petition to Deny the EchoStar/DirecTV merger application, relevant portions of which are attached as Appendix A. NAB's analysis appears to have indeed been prophetic. For in DirecTV/News Corp's announcement earlier this week that it was exponentially increasing its capacity to accommodate local into local and HDTV, the mechanisms to be employed were:

Use of Ku- and Ka- band capacity on FSS satellites, use of capacity on foreign satellites authorized to serve the U.S., incorporating digital terrestrial tuners in DIRECTV STBs, and improving spectrum efficiency through higher-order modulation schemes and improved compression algorithms.<sup>20</sup>

A more expanded discussion of the techniques available to increase DBS capacity was provided by Rupert Murdoch in his Congressional testimony last spring:

With that in mind, News Corp. is committed to dramatically increasing DirecTV's present local-into-local commitment of 100 DMAs by providing local-into-local service in as many of the 210 DMA as possible, and to do so as soon as economically and technologically feasible. To that end, we are already actively considering a number of alternative technologies, including using some of the KA-band satellite capacity on Hughes Network Systems' SPACEWAY system; seamlessly incorporating digital signals from local DTV stations into DirecTV set-top boxes equipped with DTV tuners; and by exploring and developing other emerging technologies that could be used to deliver local signals, either alone or in combination with one of the above alternatives.

In addition, News Corp. is exploring new technologies that promise to improve spectrum efficiency or otherwise increase available capacity so that DirecTV can expand the amount of HDTV content.

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<sup>20</sup> 9/22/03 DIRECTV Letter at p. 10.

Options include the use of Ka-band capacity, higher order modulation schemes, such as the 8PSK technology Fox uses for its broadcast distribution to affiliated stations, and further improvements in compression technology.<sup>21</sup>

EchoStar also has announced plans and means to expand its capacity. For example last May it announced the sale of a "SuperDish" that reportedly can "see up to three satellites at once", can "handle new Ka-band signals from EchoStar IX" and would make EchoStar the "industry leader in the provision of high-definition signals . . . allowing the company to shift its capacity usage and allow room to send up to 50 high definition channels."<sup>22</sup>

An additional clear alternative for expanding capacity is through joint ventures. This alternative too was explained in NAB's Petition to Deny the EchoStar/DirecTV proposed merger.<sup>23</sup>

In Comments recently filed before the LOCAL Television Loan Guarantee Board, Capitol Broadcasting Company, Inc. provided a technical plan developed by its subsidiary , Microspace Communications Corporation ("Microspace"), to deliver all full-power local broadcast digital stations via satellite.<sup>24</sup> The Microspace technical plan includes carriage of the entire 19.4 Mbps digital signal whether a station is broadcasting

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<sup>21</sup> Testimony of Rupert Murdoch Chairman and CEO, the News Corp. Ltd., before the House Committee of the Judiciary, May 8, 2003, at \_\_\_\_ ("Murdoch House Testimony").

<sup>22</sup> Caulk, Steve, "Dish Network Parent to Offer Super Dish", Rocky Mountain News, May 2, 2003.

<sup>23</sup> Petition to Deny at 89-91.

<sup>24</sup> In the Matter of: Proposed Regulations to Implement The LOCAL Television Loan Guarantee Program (No. RIN 0572-AB82).

one high-definition signal, several multicast DTV signals, data or some combination. On May 28, 2003, Microspace filed for three patents with the United States Patent & Trademark Office: *Systems, Methods and Transmission Formats for Providing a Common Platform for Direct Broadcast Satellite Television Networks* (U.S. Serial No. 10/446,543); *Channel Combining and Decombining in DBS Systems* (U.S. Serial No. 60/473,754); and *Commercial Replacement and Insertion in DBS Systems* (U.S. Serial No. 60/473,857).

Strangely, the satellite commenters in this proceeding do not ever mention much less discuss any of these mechanisms for expanding capacity they themselves have presented in other proceedings, do not mention or discuss Microspace's technical and business plan for providing delivery of all full power local digital television stations, and do not discuss creative ways of partnering to provide HDTV or dual carriage.

The conclusion to be drawn in comparing the negativism expressed by the satellite industry in these annual assessment proceedings regarding capacity with what has actually happened is that while the industry repeatedly has told the Commission that further progress was impossible, it has, in fact, found ways to exponentially increase capacity. There is simply no basis for the Commission to assume that decades of such continuous improvements have, or will, suddenly, and inexplicably, come to an end.

#### **IV. The Tremendous Benefits Obtained By Satellite Industry's Carriage of Television Signals Require It To Bear Some Carriage Burdens**

The satellite industry concedes that the ability to provide local into local service has provided it with tremendous benefits, both in absolute terms and in its ability to compete with cable. Last year, DirecTV's President Roxanne Austin said that: "With the

recent activation of additional local channels in our 41 local channel markets, coupled with new initiatives . . . we are poised for continued strong growth in the new year."<sup>25</sup>

According to DirecTV's comments in this proceeding, that growth has been realized, in part, as a result of increased carriage of local stations. Between June 2002 and June 2003 DirecTV added over 800,000 subscribers and for the second quarter of 2003 revenues increased 16% over 2002 revenues for the same period.<sup>26</sup> As of June 30, 2003, over 75 percent of DirecTV's residential customers were taking local programming packages in markets where they were available,<sup>27</sup> and its commitment to increase local into local service from the current 64 markets to over 100 markets in the near future has "enhanced DirecTV's ability to compete with the cable incumbents . . . ." <sup>28</sup> On the importance of DBS's carriage of local stations in order to compete with cable, Rupert Murdoch recently testified that "as a broadcast company, News Corp. was convinced then - as it is now - that DBS will be the strongest possible competitor to cable only if it can provide consumers with the local broadcast channels they have come to rely on for local news, weather, traffic and sports."<sup>29</sup>

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<sup>25</sup> DirecTV Press Release, *DirecTV Announces Fourth Quarter and Year-End 2001 Subscriber Growth* (Jan. 8, 2002).

<sup>26</sup> DirecTV Comments at 11.

<sup>27</sup> Id., at 14.

<sup>28</sup> Id., at 2.

<sup>29</sup> Murdoch House testimony at [3].

As NAB has demonstrated in Comments filed in other proceedings,<sup>30</sup> the transition to digital is crucial for the continued well being, indeed the survival, of free over the air television, and dual carriage of stations' analog and digital signals together with, ultimately, carriage of their entire digital signals in HD or otherwise, are essential elements of that transition. Having derived such tremendous benefits and growth on the backs of over the air analog television broadcasters, it is unseemly now for the satellite industry to suggest that, at best, it can only provide selected carriage as stations transition to digital.

## **V. Conclusion**

There is no real issue as to whether or either EchoStar or DirecTV has, in absolute terms, the capacity to provide dual carriage or carriage of stations' HD signals. Clearly each carrier has such capacity. Rather the issue is the extent to which such capacity as these carriers have should be dedicated to over the air broadcasters' digital transition. While this is neither the time nor the proceeding to decide that issue, when it is ripe for decision, the framework of the analysis must not be the superficial and tepid "we can't do it with current technology, with present capacity and existing satellites" that the satellite industry has provided in this annual assessment proceeding. In recent testimony before Congress urging the proposed DirecTV/News Corp. merger, Rupert Murdoch spoke of his company's "strategic vision", "expertise", "resources", "spirit of innovation", "competition", "challenging the status quo", "spirit of never-say-die", and "demonstrated determination"<sup>31</sup> to provide more and greater services and information by expanding DBS

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<sup>30</sup> See, e.g., NAB Comments and Reply Comments in In The Matter of Carriage of the Transmissions of Digital Television Broadcast Stations, CS Docket No. 98-120 filed October 13, 1998, and December 22, 1998, respectively; NAB Ex Parte Letters in CS Docket No. 98-120 filed November 1, 1999, November 10, 1999, June 20, 2000, December 28, 2002; NAB Comments and Reply Comments on Further Notice of Proposed Rule Making in CS Docket 98-120 filed August 16, 2000, and September 15, 2000, respectively; NAB/MSTV Petition for Reconsideration & Clarification in CS Docket No. 98-120 filed April 25, 2001, and Replies in Opposition Thereto filed June 4, 2001.

<sup>31</sup> Murdoch Testimony at 1-3.

capacity. This is the framework within which the feasibility of such concepts as dual carriage and carriage of HD signals should be assessed.

Respectfully Submitted,

**NATIONAL ASSOCIATION OF  
BROADCASTERS**

1771 N Street, N.W.

Washington, D.C. 20036

Tel: (202) 429-5430

A handwritten signature in black ink, reading "Benjamin F.P. Ivins". The signature is written in a cursive, flowing style with a large initial 'B' and a long, sweeping tail on the 'I'.

Henry L. Baumann  
Benjamin F.P. Ivins

September 26, 2003

## **APPENDIX A**



**c. Satellite Capacity Is Constantly Increasing  
Through Technological Innovation**

Although the analysis above shows that the two firms individually have ample capacity to deliver 100 markets of local-to-local – or 210 markets for that matter – that analysis is only the beginning of the story, because “satellite capacity” is not fixed and finite but elastic and expanding, thanks to the relentless ingenuity of engineers and business people.

NAB’s satellite engineering expert, Richard Gould, provides valuable perspective on this point. As Mr. Gould explains:

I have worked in the field of satellite engineering since the 1960s. At every point during that period, scientists and engineers have been finding ways to use satellites more efficiently and intelligently than in the past. In this respect, the satellite industry is like the computer industry: past performance records are constantly being shattered as engineers design better and better hardware and software.”<sup>266</sup>

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<sup>264</sup> See Gould Decl. at 9-11.

<sup>265</sup> *Id.* 11-15.

<sup>266</sup> *Id.* at 17.

Indeed, the Commission should hear a familiar ring to the protestations of the satellite industry that present and future capacity constraints will forever limit their ability to expand carriage of local television stations. In its decade-long fight against carriage of local stations, the cable industry made the same factual claims. In 1992, Congress soundly and correctly rejected these self-serving predictions. In doing so, Congress made logical and reasonable predictions that cable's expanding capacity would virtually eliminate what were already minimal capacity issues with the carriage of local stations. In *Turner*, the Supreme Court found these predictions eminently reasonable, and as history as shown, they were correct.<sup>267</sup> The DBS industry's current effort to contend that technological progress has come to an end are no more credible.

Consider the following points, which show that the alleged benefit – increased capacity – is not merger-specific, since it will be achieved through technical innovation in any event.

### **(1) Spot Beams**

EchoStar and DIRECTV have each embarked on launching two satellites fitted with spot beams to enhance their ability to offer local-to-local service. These satellites will enable DIRECTV and EchoStar to deliver far more local stations than could be retransmitted with CONUS satellites – and illustrate how engineering ingenuity stimulated by competition creates new "capacity" where it did not exist before.

The Joint Engineering Statement filed by EchoStar and DIRECTV also shows that engineering techniques evolve over time, and how engineers – in the spirit of rivalry – do better when they compete with each other. As discussed above, one of the critical factors that determines how much capacity can be created by using spot beams is how many times a single

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<sup>267</sup> *Turner Broadcasting Sys. v. FCC*, 512 U.S. 622 (1994).

frequency is reused in different parts of the country. On this score, the Joint Engineering Statement shows that DIRECTV (or its contractors) have, at least in the first round, been much more successful than EchoStar (or its contractors): DIRECTV achieved a reuse rate of 7.33 with its first spot-beam satellite<sup>268</sup> – which is almost 50 percent higher than the 5.0 reuse rate that EchoStar originally planned to achieve with its two spot-beam satellites.<sup>269</sup> If the two firms continue to compete with each other – as they should – their engineers will surely continue to play the game of "can you top this," to the benefit both of themselves and the public.

**(2) Dishes Capable Of Receiving Signals  
From Two Or Three Orbital Locations**

In addition to use of spot beams, many other techniques are available to enable DBS firms to expand their capacity to deliver local stations (or other programming). For example, although satellite dishes have traditionally been “pointed” at only a single orbital location, both DIRECTV and EchoStar today offer a single dish that can receive signals from two or even three different orbital locations (101° W.L, 110° W.L, and 119° W.L). Simply through use of a single dish that points to multiple satellites, consumers can receive far more programming than with the single-satellite dishes that were the only option until recently.

A few years ago, multi-satellite DBS dishes were unknown, and the prospect of "doubling or tripling satellite capacity" through their use was hard to imagine. Today, for one of the two DBS firms, multi-satellite dishes are ubiquitous: EchoStar states that "[a]pproximately 80

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<sup>268</sup> Eng. Statement at 6.

<sup>269</sup> *Id.* at 5.

percent of [its] subscribers currently have antenna dishes capable of viewing programming from both the 110° W.L. and 119 ° W.L. orbital locations.”<sup>270</sup>

### **(3) Compression Techniques With Existing Equipment**

DIRECTV and EchoStar admit that their ability to squeeze more programming onto the same number of frequencies has essentially doubled over the past few years.<sup>271</sup> Although the two firms say that they expect to achieve a 12:1 compression ratio with existing hardware,<sup>272</sup> their Engineering Statement, inexplicably, assumes a much too low compression ratio of only 10:1 when calculating how much capacity each firm has separately.<sup>273</sup> This strange pessimism is unwarranted, for at least three reasons. *First*, DIRECTV told a court more than a year ago that *its* compression ratio *even then* was about 11:1, not 10:1.<sup>274</sup> *Second*, both DIRECTV and EchoStar now state that they "expect" their own compression ratios to be at least 12:1.<sup>275</sup> It is hard to fathom why the two firms do not accept their own compression figure. *Third*, the company that manufactures compression equipment for DIRECTV – a company called Harmonic, Inc.<sup>276</sup> – has

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<sup>270</sup> Eng. Statement at 5.

<sup>271</sup> Eng. Statement at 13 ("Four to five years ago, compression ratios of 6-8 were achievable and the future outlook using existing hardware is only expected to achieve ratios of about 12:1 with acceptable quality.").

<sup>272</sup> *Id.*

<sup>273</sup> *See id.* at 7, 8, 14.

<sup>274</sup> Declaration Under Penalty [of] Perjury of Stephanie Campbell, *SBCA v. FCC*, No. 00-1571-A (E.D. Va. Nov. 2, 2000) (DIRECTV carried approximately 500 channels using its 46 frequencies, which amounts to about 11 channels per frequency).

<sup>275</sup> Eng. Statement at 13.

<sup>276</sup> Harmonic, Inc. Press Release, *DIRECTV Signs Contract for Harmonic's Digital Compression Systems – DIRECTV To Deploy Hundreds of Harmonic MV50 Encoders by Year's End* (May 7,

stated that using the type of digital compression equipment it has sold to DIRECTV, the compression ratio is actually *between 12:1 and 14:1*.<sup>277</sup> There is no reason to doubt that EchoStar could purchase the same equipment (if it has not already done so). And if the manufacturer of the compression equipment is right that a compression ratio of 14:1 is in fact achievable, that single change (as compared to the low 10:1 ratio that EchoStar and DIRECTV assume in their Engineering Statement) would give DIRECTV four extra channels for each of its 46 frequencies, or 184 total extra channels, and EchoStar four extra channels for each of its 50 frequencies, or 200 total extra channels.

When the Commission evaluates whether all progress in compression has come to an end – as the DBS firms imply in their Engineering Statement – it should consider this: even as DIRECTV has *in fact* doubled its compression ratio from around 6:1 just a few years ago to (by its own admission) 12:1 today, *it has again and again told the Commission, incorrectly, that it had essentially hit a brick wall as far as any further progress in compression technology:*

- July 31, 1998: "DIRECTV has substantially reached current limits on digital compression with respect to the capacity on its existing satellites. Therefore, the addition of more channels will necessitate expanding to additional satellites . . . ."
- Aug. 6, 1999: "DIRECTV has substantially reached current limits on digital compression with respect to the capacity on its existing satellites."
- Sept. 8, 2000: "DIRECTV has substantially reached current technological limits on digital compression with respect to capacity on its existing satellites. Although there are potentially very small gains still possible through the use of advanced algorithms, such technological developments can neither be predicted nor relied upon as a means of increasing system channel capacity."

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2001) ("Harmonic's technology has played an integral role in our ability to provide the widest offering of channels possible to more than 9.8 million DIRECTV customers across the U.S.," said Dave Baylor, executive vice president, DIRECTV, Inc.).

<sup>277</sup> See Gould Decl. at 6-7.

- Aug. 3, 2001: "DIRECTV has offered digitally compressed signals from its inception, and has substantially reached current technological limits on digital compression with respect to capacity on its existing satellites. Although there are potentially very small gains still possible through the use of advanced algorithms, such technological developments can neither be predicted nor relied upon as a means of increasing system channel capacity."<sup>278</sup>

In other words, as DIRECTV was – no doubt in good faith – repeatedly telling the Commission that further progress was impossible, it (or its vendors) were in fact finding ways to double the number of channels that could be delivered with the same number of frequencies. The lesson here is plain: just as happened with cable, America's satellite engineers are constantly devising fresh ways to expand the capacity of satellites to deliver television programming, and it would be irresponsible to assume that decades of continuous improvements have suddenly, and inexplicably, come to an end.

#### (4) **Expanded Channel Capacity Possible Through 8PSK With New Set-Top Boxes**

Everything that DIRECTV and EchoStar say about channel capacity in their Engineering Statement is premised on what can be done "using existing hardware."<sup>279</sup> But that limitation makes no sense. *First*, there is an enormous amount of natural turnover as consumers replace old set-top boxes (or buy new ones with new features, such as personal video recorders). *Second*, if

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<sup>278</sup> See, e.g., Comments of DIRECTV, Inc., [1998] Annual Assessment of the Status of Competition in the Markets for the Delivery of Video Programming, CS Docket No. 98-102, at 5 (filed July 31, 1998); Comments of DIRECTV, Inc., [1999] Annual Assessment of the Status of Competition in the Markets for the Delivery of Video Programming, CS Docket No. 99-230, at 9 (filed Aug. 6, 1999); Comments of DIRECTV, Inc. [2000] Annual Assessment of the Status of Competition in the Markets for the Delivery of Video Programming, CS Docket No. 00-132, at 16 (filed Sept. 8, 2000); Comments of DIRECTV, Inc. [2001] Annual Assessment of the Status of Competition in the Markets for the Delivery of Video Programming, CS Docket No. 01-129, at 16 (filed Aug. 3, 2001).

<sup>279</sup> Eng. Statement at 13.

the two companies wish to share frequencies, including through a joint venture, they will need to supply many if not all of their customers with new set-top boxes.

If consumers are provided with new set-top boxes, a powerful new capacity-expanding technique becomes available: so-called "higher-order modulation and coding" using a technique called "8PSK" (or potentially 16PSK TCM or 16QAM), which would permit DBS firms to transmit substantially more channels than they do today with QPSK (Quaternary Phase Shift Keying) modulation. As satellite engineer Richard G. Gould explains, simply moving from the current standard of QPSK to the next standard up (8PSK), would *by itself* result in at least a 30% increase in satellite capacity. For the 50 Ku-band CONUS frequencies controlled by EchoStar, for example, this technical improvement alone would result in an increase of at least 180 channels (50 frequencies x 12 channels/frequency x .3).

Of course, because 8PSK requires a new set-top box, a satellite carrier might need to phase it in over a period of a few years, just as driver-side air bags have gradually become ubiquitous in American automobiles. For example, satellite carriers might initially use 8PSK to offer local-to-local service in new cities, expecting that (a) new customers will acquire the 8PSK boxes in the first instance and (b) existing customers will acquire the 8PSK boxes over time. Alternatively, the DBS firms might offer customers free new set-top boxes as part of a production joint venture in which they achieve the "anti-duplication" benefits of the merger while continuing to compete as separate firms. In any event, it would be absurd to ignore this powerful and readily-available technical tool, which DIRECTV and EchoStar do not even mention in their Engineering Statement, but that would undoubtedly be used by competent engineers seeking to maximize satellite capacity.

## **(5) MPEG-4**

Finally, there is every reason to expect that the current signal compression technology, known as MPEG-2, will be replaced by more advanced technologies, such as MPEG-4 (and no doubt future generations thereafter). With higher compression ratios in the future, the number of TV channels that can be supported on a single frequency will increase beyond the assumptions set forth above.<sup>280</sup>

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Just as anyone who bought a personal computer in 1998 has seen it become a virtual antique today, satellite engineers have a long and unbroken record of making last year's performance standards seem old hat. If the Commission leaves these two highly energetic and creative DBS rivals to continue their spirited competition with one another, there can be no doubt that satellite "capacity" will continue its long tradition of explosive growth for many years to come.

### **2. All Of The Benefits Of The Merger Can Be Obtained Today By A Production Joint Venture**

EchoStar claims that it must merge with DIRECTV to gain the efficiencies of combining duplicative spectrum capacity in order to offer new services and local channels in more markets.<sup>281</sup> However, this is not the case. All of the claimed efficiencies (*i.e.*, elimination of duplicative spectrum) can be obtained through a joint venture. Antitrust laws do not prohibit

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<sup>280</sup> See Gould Decl. at 14.

<sup>281</sup> Of curious note is Mr. Ergen's claim that this is a merger of two "weak" competitors. As was noted by an industry observer, "[u]ntil he had DIRECTV in his sight, did Charles Ergen ever say his company, and DBS as a whole, could not compete with cable?" Bob Scherman, *A Satellite TV Monopoly: Death Of Competition and Choice*, 13 SATELLITE BUSINESS NEWS, Nov. 7, 2001, 12.



competitors from forming joint ventures or other limited arrangements to develop, produce, or market new products.<sup>282</sup> Production joint ventures are looked upon favorably by the courts because they can allow for the pro-competitive effect of integrating functions while at the same time allowing competition between the parties to the joint venture to thrive.<sup>283</sup>

EchoStar can easily enter into a joint venture with DIRECTV to share channel uplinks and downlinks. In fact, EchoStar's merger filings demonstrate beyond doubt that such a joint production venture is plainly feasible: the two parties are already planning on taking all the technical steps necessary to such a venture, such as providing their customers with set-top boxes capable of receiving programming from either firm's satellites. (Strikingly, EchoStar recently announced that it expects to have such a box ready by this spring.)<sup>284</sup> If EchoStar and DIRECTV were correct about the gains to be achieved by avoiding duplicative backhauls, uplinks, and downlinks of television programming, those gains would plainly be sufficient to finance the steps necessary to achieve the same gains through a joint venture – while preserving the enormous

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<sup>282</sup> See 2000 ANTITRUST GUIDELINES FOR COLLABORATIONS AMONG COMPETITORS, <<http://www.ftc.gov/bc/guidelin/htm>>. See also *PPG*, 798 F.2d at 1508 (D.C. Cir. 1986) (“cooperation with other market participants could yield similar results without causing the same market concentration.”).

<sup>283</sup> See generally, ABA SECTION OF ANTITRUST LAW, ANTITRUST LAW DEVELOPMENTS, ch. IV(B)(2) (4<sup>th</sup> ed. 1997). See also *In re General Motors Corp.*, 103 F.T.C. 374 (1984) (production joint venture between two largest automobile manufacturers in the world upheld because it was a limited enterprise rather than a merger of two parents).

<sup>284</sup> *EchoStar Gears Up For Takeover*, Communications Daily (Jan. 10, 2002) (“As EchoStar gears up for proposed acquisition of Hughes Electronics and DIRECTV, it expects to have set-top box (STB) by spring capable of receiving rival's service. Pro 301 will ship as EchoStar receiver but will contain 4 MB of memory for DIRECTV's advanced program guide and it will be modified to handle its satellite switching, [EchoStar] Senior VP Mark Jackson said at CES here. Final detail, should \$26 billion deal be approved, would be for DIRECTV to transfer source code to box via software download to receiver's flash memory, Jackson said . . . .”) (emphasis added).

benefits to the public of rivalry between two DBS firms rather than allowing creation of a DBS monolith.

In a recent interview, EchoStar Chairman Ergen explained why the two firms had not yet formed a joint venture:

[we] couldn't ... get these efficiencies without merging... because we had some obstacles to overcome. Whose technology are we going to use? That meant one of the companies had to replace all of their boxes, and the other company got away without having that cost.... Second, how would you combine the spectrum? You can't flip a switch with two incompatible systems today and suddenly overnight light up and change out all of those boxes.... [Also, who] would get what frequencies and how many frequencies [would you] trade off?<sup>285</sup>

In other words, Mr. Ergen did not—and could not—dispute that a joint venture is technically feasible; the only obstacle is to agree on allocation of costs.<sup>286</sup> If the benefits of avoidance of duplication were as great as the applicants contend, however, they would have every incentive to go back to the bargaining table—after the merger is disapproved—to resolve the cost allocations.